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MAGNETORHEOLOGICAL FLUID DAMPER

ABSTRACT

[0040] A magnetorheological damper device is provided having an increased shear interface area per unit volume of device, which enhances the stroking force of the damper. The damper generally includes a thrust shaft comprising an external threaded surface in threaded communication with a sealed housing, wherein at least one end of the thrust shaft extends from the housing; a plurality of rotors and stators alternately arranged in the housing, wherein the plurality of rotors comprise a planar surface with a centrally located aperture that is rotatably engaged with the threaded surface of the thrust shaft, wherein the plurality of stators is fixedly attached to the housing and comprises a centrally located aperture dimensioned to accommodate vertical movement of the thrust shaft and a planar surface substantially parallel to the planar surface of the at least one rotor, and wherein alternating stators comprises a permanent magnet or an electromagnet; and a magnetorheological fluid disposed in a space defined by the plurality of rotors and stators.